

Notice of Allowability

Application No.

10/767,794

Applicant(s)

BILLHARTZ ET AL.

Examiner

Kamran Afshar, 571-272-7796

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/13/2006.
2. ☒ The allowed claim(s) is/are 1,2,4-14,16-21 and 23-37.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. John F. Woodson, II, Reg. No.: 45, 236 on 6/13/2006.

The application has been amended as follows:

In The Claim(s):

1. (Currently amended) A wireless communications system comprising:

a plurality of wireless communications devices each having a device type associated therewith from among a plurality of different device types, each WLAN device having a unique identifier (UID) associated therewith, and each device type having a known device latency associated therewith; and

a wireless device locator comprising

at least one antenna and a transceiver connected thereto, and

a controller for cooperating with said transceiver for transmitting a plurality of location finding signals to a target wireless communications device from among said plurality of wireless communications devices and inserting the UID for said target wireless communications device in each of the location finding signals;

said target wireless communications device transmitting a respective reply signal for each of said location finding signals based upon the UID in the location finding signals;

said controller of said wireless device locator also for cooperating with said transceiver for receiving the reply signals,

determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of said target wireless communications device, and

estimating a range to said target wireless communications device based upon a plurality of determined propagation delays.

2. (Original) The wireless communications system of Claim 1 wherein said controller estimates the range based upon an average of the propagation delays.

3. (Cancelled).

4. (Currently amended) The wireless communications system of Claim ~~3~~ 1 wherein said target wireless communications device generates unsolicited signals including the UID thereof; wherein said controller cooperates with said transceiver to receive at least one unsolicited signal from said target device; and wherein said controller determines the UID for said target wireless communications device from the at least one unsolicited signal.

5. (Original) The wireless communications system of Claim 4 wherein said controller determines the device type of said target wireless communications device based upon the UID thereof.

6. (Original) The wireless communications system of Claim 5 wherein the UIDs comprise media access control (MAC) addresses of respective wireless communications devices, and wherein said controller determines the device type of said target wireless communications device based upon the MAC address thereof.

7. (Original) The wireless communications system of Claim 1 wherein said at least one antenna comprises a plurality of antennas; and wherein said controller cooperates with said plurality of

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antennas to determine a bearing to said target wireless communications device based upon at least one of the received reply signals.

8. (Original) The wireless communications system of Claim 7 wherein the bearing is a three-dimensional bearing.

9. (Original) The wireless communications system of Claim 1 wherein said at least one antenna comprises at least one directional antenna.

10. (Original) The wireless communications system of Claim 1 wherein said wireless device locator further comprises a portable housing carrying said at least one antenna, said transceiver, and said controller.

11. (Original) The wireless communications system of Claim 1 wherein said wireless communications devices comprise wireless local area network (WLAN) devices.

12. (Original) The wireless communications system of Claim 1 wherein said wireless communications devices comprise mobile ad-hoc network (MANET) devices.

13. (Original) The wireless communications system of Claim 1 wherein said wireless communications devices comprise cellular communications devices.

14. (Currently amended) A wireless communications system comprising:
a plurality of wireless local area network (WLAN) devices each having a device type associated therewith from among a plurality of different device types, each WLAN device having a unique identifier (UID) associated therewith, and each device type having a known device latency associated therewith; and

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a wireless device locator comprising

- at least one antenna and a transceiver connected thereto, and
- a controller for cooperating with said transceiver for transmitting a plurality of location finding signals to a target WLAN device from among said plurality of WLAN devices and inserting the UID for said target wireless communications device in each of the location finding signals;

said target WLAN device transmitting a respective reply signal for each of said location finding signals based upon the UID in the location finding signals;

said controller of said wireless device locator also for

- cooperating with said transceiver for receiving the reply signals,
- determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of said target WLAN device, and
- estimating a range to said target WLAN device based upon an average of a plurality of determined propagation delays.

15. (Cancelled).

16. (Currently amended) The wireless communications system of Claim ~~15~~ 14 wherein said target WLAN device generates unsolicited signals including the UID thereof; wherein said controller cooperates with said transceiver to receive at least one unsolicited signal from said target WLAN device; and wherein said controller determines the UID for said target WLAN device from the at least one unsolicited signal.

17. (Original) The wireless communications system of Claim 16 wherein said controller determines the device type of said target WLAN device based upon the UID thereof.

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18. (Original) The wireless communications system of Claim 17 wherein the UIDs comprise media access control (MAC) addresses of respective WLAN devices, and wherein said controller determines the device type of said target WLAN device based upon the MAC address thereof.

19. (Original) The wireless communications system of Claim 14 wherein said at least one antenna comprises a plurality of antennas; and wherein said controller cooperates with said plurality of antennas to determine a bearing to said target WLAN device based upon at least one of the received reply signals.

20. (Currently amended) A wireless device locator for locating a target wireless communications device having a unique identifier (UID) associated therewith, the wireless device locator comprising:

at least one antenna and a transceiver connected thereto; and

a controller for

cooperating with said transceiver for transmitting a plurality of location finding signals to the target wireless communications device, inserting the UID for the target wireless communications device in each of the location finding signals, and receiving a respective reply signal ~~therefrom~~ for each of said location finding signals generated by the target wireless communications device based upon the UID in the location finding signals,

determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon a known device latency of the target wireless communications device, and

estimating a range to the target wireless communications device based upon a plurality of determined propagation delays.

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21. (Original) The wireless device locator of Claim 20 wherein said controller estimates the range based upon an average of the propagation delays.

22. (Cancelled).

23. (Currently amended) The wireless device locator of Claim ~~22~~ 20 wherein the target wireless communications device generates unsolicited signals including the UID thereof; wherein said controller cooperates with said transceiver to receive at least one unsolicited signal from the target device; and wherein said controller determines the UID for the target wireless communications device from the at least one unsolicited signal.

24. (Original) The wireless device locator of Claim 20 wherein said at least one antenna comprises a plurality of antennas; and wherein said controller cooperates with said plurality of antennas to determine a bearing to the target wireless communications device based upon at least one of the received reply signals.

25. (Original) The wireless device locator of Claim 20 wherein said at least one antenna comprises at least one directional antenna.

26. (Original) The wireless device locator of Claim 20 wherein said wireless device locator further comprises a portable housing carrying said at least one antenna, said transceiver, and said controller.

27. (Original) The wireless device locator of Claim 20 wherein the target wireless communications device comprises a wireless local area network (WLAN) device.

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28. (Original) The wireless device locator of Claim 20 wherein the target wireless communications device comprises a mobile ad-hoc network (MANET) device.

29. (Original) The wireless device locator of Claim 20 wherein the target wireless communications device comprises a cellular communications device.

30. (Currently amended) A method for locating a target wireless communications device from among a plurality of wireless communications devices, each wireless communications device having a device type associated therewith from among a plurality of different device types, each WLAN device having a unique identifier (UID) associated therewith, and each device type having a known device latency associated therewith, the method comprising:

transmitting a plurality of location finding signals to the target wireless communications device, inserting the UID for the target wireless communications device in each of the location finding signals, and receiving a respective reply signal for each of the location finding signals ~~therefrom~~ generated by the target wireless communications device based upon the UID in the locations signals;

determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of the target wireless communications device; and

estimating a range to the target wireless communications device based upon a plurality of determined propagation delays.

31. (Original) The method of Claim 30 wherein the controller estimates the range based upon an average of the propagation delays.

32. (Currently amended) The method of Claim 30 wherein ~~each wireless communications device has a unique identifier (UID) associated therewith; wherein~~ the target wireless communications device generates unsolicited signals including the UID thereof; and further comprising:

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receiving at least one unsolicited signal from the target device; and
determining the UID for the target wireless communications device from the at least one
unsolicited signal; ~~and~~
~~inserting the UID in the location finding signals.~~

33. (Original) The method of Claim 32 further comprising determining the device type of
the target wireless communications device based upon the UID thereof.

34. (Original) The method of Claim 30 further comprising determining a bearing to the
target wireless communications device based upon at least one of the received reply signals.

35. (Original) The method of Claim 30 wherein the target wireless communications
device comprises a wireless local area network (WLAN) device.

36. (Original) The method of Claim 30 wherein the target wireless communications
device comprises a mobile ad-hoc network (MANET) device.

37. (Original) The method of Claim 30 wherein the target wireless communications
device comprises a cellular communications device.

Allowable Subject Matter

2. In View of the Amended claim(s) as discussed in item 1, Claims 1-2, 4-14, 16-21 and 23-37 are
allowed.

The following is an examiner's statement of reasons for allowance: 1-2, 4-14, 16-21 and 23-37.

With respect to claims 1, 20, the prior art of record fails to disclose singly or in combination or render obvious that the controller for cooperating with the transceiver for transmitting a plurality of location finding signals to a target wireless communications device from among the plurality of wireless communications devices and inserting the UID for the target wireless communications device in each of the location finding signals; the target wireless communications device transmitting a respective reply signal for each of the location finding signals based upon the UID in the location finding signals; the controller of the wireless device locator also for cooperating with the transceiver for receiving the reply signals, determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of the target wireless communications device, and estimating a range to the target wireless communications device based upon a plurality of determined propagation delays.

With respect to claim 14, the prior art of record fails to disclose singly or in combination or render obvious that the controller for cooperating with the transceiver for transmitting a plurality of location finding signals to a target WLAN device from among the plurality of WLAN devices and inserting the UID for the target wireless communications device in each of the location finding signals; the target WLAN device transmitting a respective reply signal for each of the location finding signals based upon the UID in the location finding signals; the controller of the wireless device locator also for cooperating with the transceiver for receiving the reply signals, determining a propagation delay associated with the transmission of each location finding signal and the respective reply signal therefor based upon the known device latency of the target WLAN device, and estimating a range to the target WLAN device based upon an average of a plurality of determined propagation delays.

With respect to claim 30, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: transmitting a plurality of location finding signals to the target wireless communications device, inserting the UID for the target wireless communications device in each of the location finding signals, and receiving a respective reply signal for each of the location finding signals generated by the target wireless communications device based upon the UID in the locations signals; determining a propagation delay associated with the transmission of each location finding signal

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and the respective reply signal therefor based upon the known device latency of the target wireless communications device; and estimating a range to the target wireless communications device based upon a plurality of determined propagation delays.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Feild, Joseph** can be reached @ (571) 272-4090. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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SUPERVISORY PATENT EXAMINER